UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/657,152	09/09/2003	Isao Mochizuki	117047	1896

25944 7590 10/18/2007

OLIFF & BERRIDGE, PLC
P.O. BOX 320850
ALEXANDRIA, VA 22320-4850

EXAMINER	
MOON, SEOKYUN	
ART UNIT	**PAPER NUMBER**
2629	

MAIL DATE	DELIVERY MODE
10/18/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/657,152	MOCHIZUKI ET AL.	
	Examiner	Art Unit	
	Seokyun Moon	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 August 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *18* is/are allowed.

6)☒ Claim(s) *1,8,10,12,19-23,25-31 and 33-35* is/are rejected.

7)☒ Claim(s) *2-7,9,11,13-17,24 and 32* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *07/18/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. The Applicants' arguments have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

2. **Claim 34** is objected to because of the following informalities: "*wherein the second axis and the support point are not at a same, and*".

For further examination purpose, the claim limitation will be interpreted as, "*wherein the second axis and the support point are not at a same location*".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 1, 8, 30,** and **31** are rejected under 35 U.S.C. 103(a) as being unpatentable over Furuki (US 2002/0050980) in view of Hiroshima (JP Pub. 10-207389).

As to **claim 1,** Furuki teaches an input device [fig. 18] including:

a foldable keyboard including a first keyboard unit ("*first keyboard unit 2a*") [fig. 18], a second keyboard unit ("*second keyboard unit 2b*"), and a rotatable connecting part ("*unit hinge 4*") provided between the first and second keyboard units, so that the first keyboard and second keyboard units are

rotated relative to a first axis to come apart from each other into an unfolded, horizontally arranged state through the connecting part for use of the keyboard [fig. 18], while the first and second keyboard units are rotated relative to the first axis to come close to each other into a closed, folded state through the connecting part for nonuse of the keyboard [fig. 17], and

a display ("*display portion 17*") [fig. 18] rotatably attached to one edge of the first or second keyboard unit in order to rotate relative to a second axis.

Furuki does not teach the display being flexible and foldable relative to a support point, wherein the second axis and the support point are not at a same location.

However, Hiroshima [drawing 3] teaches a foldable flexible display ("*30*") rotatably attached to one edge of a keyboard unit ("*20*") in order to rotate relative to a second axis, the display being openable relative to a support point and foldable relative to the support point, wherein the second axis and the support point are not at a same location, wherein the foldable display includes a flexible display sheet ("*40*") [abstract] that bends when the foldable flexible display is folded relative to the support point [drawing 8].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the input device of Furuki to include a foldable flexible display which is openable relative to a support point and foldable relative to the support point and includes a flexible display sheet that bends when the foldable flexible display is folded relative to the support point, as taught by Hiroshima, in order to allow the device of Furuki to provide a wide display.

Furuki as modified by Hiroshima teaches the display being openable relative to the support point when the first and second keyboard units are in the horizontally arranged state and foldable relative to the support point when the first and second keyboard units are in the folded state.

As to **claim 8**, all of the claim limitations have already been discussed with respect to the rejection of claim 1 except for the input device being used for a personal computer and including a computer unit in the first or second keyboard unit.

Furuki teaches the input device being used for a personal computer [par. (0002) lines 1-2].

Furuki as modified by Hiroshima does not expressly disclose the personal computer including a computer main unit in the first or second keyboard unit.

However, Examiner takes official notice that it is well known in the art to implement a computer main unit such as CPU in a keyboard unit rather than a display unit, for a portable computer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the personal computer of Furuki as modified by Hiroshima to include a computer main unit in the first or second keyboard unit, in order to minimize the weight of the display, and thus to minimize the stress applied on the linkage part connecting the keyboard units to the display.

As to **claim 30**, Furuki as modified by Hiroshima teaches the first and second keyboard units each are of a rectangular shape having long sides and short sides, and the flexible display being folded along the long sides [Furuki: figs. 17 and 18].

Furuki as modified by Hiroshima and Leman does not teach the flexible display being folded along the short sides.

However, the courts have held that a mere change of size of the components of the device is generally recognized as being within the level of ordinary skill in the art.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the dimensions of the keyboard units of the input device of Furuki as modified by Hiroshima and Leman such that the display is folded along the short sides and to modify the dimensions of the flexible display to be same as the dimension of the keyboard units in order to allow the device of Furuki as modified by Hiroshima and Leman to have various alternative designs.

As to **claim 31**, Furuki as modified above teaches the flexible display being rotatably attached to one edge of the first or second keyboard unit [Furuki: fig. 18] and including a portrait part [Hiroshima: drawing 6] having a width substantially equal to the length of the long side of the folded keyboard in which the first and second keyboard units are superposed, so that the flexible display is folded to another width substantially equal to a total width of the first or second keyboard unit and the control unit in a direction of the short side.

Furuki as modified above does not expressly disclose the device including a computer control unit in the first or second keyboard unit.

However, Examiner takes official notice that it is well known in the art to implement a computer main unit such as CPU in a keyboard unit rather than a display unit, for a portable computer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device of Furuki as modified above to include a computer control unit in the first or second keyboard unit, in order to minimize the weight of the display, and thus to minimize the stress applied on the linkage part connecting the keyboard units to the display.

5. **Claims 10** and **12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Furuki and Hiroshima as applied to claims 1, 8, 30, and 31 above, and further in view of Noguchi (US 4,341,980).

Furuki as modified by Hiroshima teaches the flexible display having a rear surface [Hiroshima: Drawing 6].

Furuki as modified by Hiroshima does not expressly disclose a resilient metallic thin plate being laminated to the rear surface of the display.

However, Noguchi [fig. 2] teaches a rear surface ("*back base plate 11*") of a display device being made of resilient metallic plate ("*elastic metal plate*") [col. 4 lines 59-60].

It would have been obvious to one of ordinary skill in the art at the time of the invention to laminate a resilient or an elastic metallic plate on the rear surface of the display of Furuki as modified by

Hiroshima, as taught by Noguchi, in order to absorb any stress/pressure applied on the display [col. 9 lines 23-27].

6. **Claims 19-23**, **25-29**, and **34-35** are rejected under 35 U.S.C. 103(a) as being unpatentable over Furuki and Hiroshima as applied to claims 1, 8, 30, and 31 above, and further in view of Leman (US 2001/0054986).

As to **claim 19**, Furuki as modified by Hiroshima teaches that the flexible display is widened from the folded state to a state extending in a direction parallel to a short side of the keyboard in which the first and second keyboard units are horizontally arranged [Hiroshima: drawings 2 and 3].

Furuki as modified by Hiroshima does not teach that the flexible display is widened from the folded state to a state extending in a direction parallel to a long side of the keyboard.

However, Leman [figs. 1 and 2] teaches an idea of folding or unfolding/widening the display in a direction parallel to a long side of a keyboard.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the flexible display of Furuki as modified by Hiroshima to be widened from the folded state to a state extending in a direction parallel to a long side of the keyboard, as taught by Leman, in order to allow the input device of Furuki as modified by Hiroshima to provide a wide display which has a dimension more close to 16:9 screen size.

As to **claim 20**, Furuki as modified by Hiroshima and Leman teaches that the keyboard has a first length in the horizontally arranged state of the first and second keyboard units, and the flexible display includes a display part having a length substantially equal to the first length, and the flexible display is folded, due to flexibility, to another length substantially equal to a second length of the folded keyboard in which the first and second keyboard units are superposed one on top of the other through the connecting part [Furuki: fig. 17 and Leman: fig. 3].

As to **claim 21**, Furuki as modified by Hiroshima and Leman teaches the flexible display being rotatably attached to one edge of the first or second keyboard unit and having a width corresponding to a total width of the first and second keyboard unit [Furuki: fig. 18 and Leman: fig. 1].

Furuki as modified by Hiroshima and Leman does not expressly teach a control unit being united with the first or second keyboard unit.

However, Examiner takes official notice that it is well known in the art to implement a computer control unit such as CPU in a keyboard unit rather than a display unit, for a portable computer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the personal computer of Furuki as modified by Hiroshima and Leman to include a computer control unit in the first or second keyboard unit, in order to minimize the weight of the display, and thus to minimize the stress applied on the linkage part connecting the keyboard units to the display.

As to **claim 22**, all of the claim limitations have already been discussed with respect to the rejection of claim 19.

As to **claim 23**, all of the claim limitations have already been discussed with respect to the rejection of claim 20.

As to **claim 25**, Furuki as modified above teaches the flexible display having a width corresponding to a total width of the first or second keyboard unit and the control unit (note that the control unit is united with one of the first or second keyboard unit and the width of the flexible display is equal to the total width of the first and second keyboard unit).

As to **claim 26**, all of the claim limitations have already been discussed with respect to the rejection of claim 23.

As to **claim 27**, Furuki as modified by Hiroshima teaches each of the first and second keyboard units being of a rectangular shape having long sides and short sides and the flexible display being folded along the short sides [Furuki: fig. 18].

Furuki as modified by Hiroshima does not teach the flexible display being folded along the long sides.

However, Leman [figs. 1 and 2] teaches an idea of folding or unfolding/widening a display along long sides of the display.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the flexible display of Furuki as modified by Hiroshima to be folded along long sides of the display, as taught by Leman, in order to allow the input device of Furuki as modified by Hiroshima to provide a wide display which has a dimension more close to 16:9 screen size.

As to **claim 28**, Furuki as modified by Hiroshima and Leman teaches that the keyboard in which the first and second keyboard units are horizontally arranged has an open length in parallel to the long side of the keyboard unit, and the flexible display includes a landscape display part having a length substantially equal to the open length of the keyboard, and the flexible display is folded, due to flexibility, to another length substantially equal to a length of the long side of the folded keyboard in which the first and second keyboard units are superposed through the connecting part [Furuki: figs. 17 and 18 and Leman: figs. 1 and 2].

As to **claim 29**, Furuki as modified by Hiroshima and Leman teaches the flexible display being rotatably attached to one edge of the first or second keyboard unit and having a width corresponding to a total width of the first or second keyboard unit in a direction of the short side [Furuki: fig. 16 and Leman: fig. 3].

Furuki as modified by Hiroshima and Leman does not expressly teach a control unit being united with the first or second keyboard unit.

However, Examiner takes official notice that it is well known in the art to implement a computer control unit such as CPU in a keyboard unit rather than a display unit, for a portable computer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the personal computer of Furuki as modified by Hiroshima and Leman to include a computer control unit in the first or second keyboard unit, in order to minimize the weight of the display, and thus to minimize the stress applied on the linkage part connecting the keyboard units to the display.

As to **claim 34**, all of the claim limitations have already been discussed with respect to the rejection of claim 1 except for the foldable flexible display including a first cover member, a second cover member, a joint, and a flexible display sheet.

Furuki as modified by Hiroshima teaches the flexible display including a first cover member (Hiroshima: "*52-1*") [Hiroshima: drawing 5] rotatably attached to one edge of the first or second keyboard unit [Furuki: fig. 18], a second cover member (Hiroshima: "*52-2*"), a joint (Hiroshima: "*54*") provided between the first and second cover members, and a flexible display sheet (Hiroshima: "*40*") [Hiroshima: drawing 3] disposed on one side of the first and second cover members, and traversing the joint [Hiroshima: drawing 6].

Furuki as modified by Hiroshima does not teach that the second cover member positioned side by side along a long side of the opened keyboard in which the first and second keyboard units are horizontally arranged when the display is in an open state.

However, Leman [fig. 1] teaches an idea of positioning a second cover member of a foldable display side by side along a long side of a keyboard when the display is in an open state.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the second cover member of the foldable flexible display of Furuki as modified by Hiroshima to be positioned side by side along a long side of a keyboard when the display is in an open state, as taught by Leman, in order to allow the device of Furuki as modified by Hiroshima to provide a wide display which has a dimension more close to 16:9 screen size.

As to **claim 35**, Furuki as modified by Hiroshima and Furuki teaches the foldable flexible display being foldable in a direction such that the display sheet opposes itself when the display is in a folded state [Hiroshima: drawing 8].

7. **Claim 33** is rejected under 35 U.S.C. 103(a) as being unpatentable over Niitsuma (JP Pub. 09-134132) in view of Sall (US 6,859,219).

Niitsuma teaches a display [drawing 1] including:

a first cover member (the upper portion of the display having "*2a*" as its frame);

a second cover member (the lower portion of the display having "*2b*" as its frame);

a linkage system including a pair of link parts ("*2a*" and "*2b*" located on the sides of the display) which couples the first and second cover members; and

a flexible display sheet ("*flexible display surface 2*") [abstract line 12] placed over the first cover member and the second cover member,

the second cover member being slidable and foldable (bringing into a compact form by laying the first cover member and the second cover members together) [drawings 3a and 3b] through the linkage system with respect to the first cover member, wherein the second cover member is slidable with respect to the first cover member when the first and second cover members are positioned in the same plane.

Niitsuma does not expressly teach a joint being provided between the first and second cover members, the linkage system integrally formed with the joint, and the flexible display sheet being placed over the joint.

However, Sall [fig. 2] teaches a display including a joint ("*212*" or "*210*") provided between a first ("*106*") and a second cover member ("*102*") and a linkage system integrally formed with the joint at both ends, wherein the linkage system includes a pair of link parts ("*204*" and "*202*") which couples the first and second cover members.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the display of Niitsuma to replace its linkage system with the linkage system of Sall, which is integrally formed with the joint provided between the first and second cover member, in order to minimize the frame size of the display.

Niitsuma as modified by Sall inherently teaches the flexible display sheet being placed over the joint since it is required for the display of Niitsuma as modified by Sall to expose the display sheet on the very front surface of the display in order to display images.

Allowable Subject Matter

8. **Claim 18** is allowed.

9. **Claims 2-7, 9, 11, 13-17, 24,** and **32** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

10. The Applicants' submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on July 18, 2007 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609.04(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seokyun Moon whose telephone number is (571) 272-5552. The examiner can normally be reached on Mon - Fri (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (572) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

October 12, 2007

- s.m.

SUMATI LEFKOWITZ
SUPERVISORY PATENT EXAMINER